

Darga, K. (2000)

Appendix B

Some Reflections on Science, Politics, and the Census

An important paradox remains to be explained: If the case against the adjustment methodology is so strong, how has it come about that so many scholars and journalists have lined up in its support?

This is a very important question. Readers trying to make sense of the adjustment issue may find it difficult to take the minority position while the trenches on the opposite side are filled with so many experts with impressive credentials and experience. The question also has broader implications. If we can understand how well-trained and well-intentioned scientists arrived at a dubious position on this issue, we may come to a better understanding of other scientific and political debates.

This analysis begins with a presumption that participants on all sides of the census debate approach the issue with honesty and sincerity. It is too often assumed that people who do not recognize the merits of one's own position are cynically distorting their analysis to promote a partisan, economic, or personal agenda. I believe that the people with whom I have discussed this issue—whether social scientists, politicians, or policy advocates—are sincere in their beliefs. The practical impli-

cations of adjusting the census can certainly cloud and direct one's thinking, but I believe that the parties to this debate are operating in good faith.

To understand the nature of the debate over census undercount, it is helpful to consider some similarities and differences among legal, political, and scientific debates. It is also necessary to understand how scientific debates are affected by the organizational, political, and legal contexts in which they often take place. Such an analysis points toward a key flaw in many assessments of the undercount issue: important questions and evidence have often been overlooked.

The Role of Attorneys in the Search for Truth. American criminal cases would seem quite peculiar to someone who has never been exposed to an "adversarial" legal system. Each case that comes to trial typically involves at least one attorney who is aggressively trying to prove something that is not true. Either the prosecution is striving to convict a person who is really innocent of the crime with which they are charged, or else the defense is seeking to exonerate a person who is really guilty. Neither side is engaged in an impartial effort to present the truth.

Yet truth is served well in a courtroom where two opposing attorneys seek valid arguments to support their pre-established positions. If both sides of the case are presented effectively, an impartial judge or jury will be in a good position to determine the extent to which each side should prevail. The truth would often be served more poorly by a legal system in which a single team of investigators sought to substantiate their sincere personal

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opinions about each case. The prejudices and initial hypotheses of those investigators could sometimes lead down the wrong path, and valid arguments on the other side of the case would then remain unexplored and unspoken.

The Political Search for Truth. Political debates are often similar to legal debates in certain respects. Like attorneys, politicians and policy advocates tend to have objectives that are already established. They then seek convincing arguments and data that promote those objectives. They are searching for truth, but their search is not always impartial: they sometimes know what sort of truth they want to find. They also know what sort of evidence they do *not* expect to find. Among like-minded people, contrary evidence is too easily dismissed as inconclusive or faulty, while evidence that supports the desired objective is too easily accepted as sound.

The advocacy groups on opposite sides of an issue therefore tend to produce studies that reach opposite conclusions. That does not necessarily mean that anyone is cynically distorting the evidence or deliberately propagating falsehoods. Each group tends to ask different questions, look for different evidence, and evaluate evidence against different expectations.

Once again, such an approach can work well when opposing positions are effectively represented—particularly if the parties to the dispute can remain at least a little bit open-minded or if there is a substantial uncommitted faction that can be swayed by the effective arguments of either side. Those who observe such a dispute cannot simply throw up their hands and bemoan the fact

that knowledgeable experts disagree. They must assess the strengths and weaknesses on each side of the issue and determine how well each argument can withstand critical scrutiny.

The Scientific Search for Truth. Scientific debates tend to be more similar to legal and political debates than many scientists may like to think:

- Like attorneys and policy advocates, scientists tend to have positions that they seek to prove. Scientists are often associated with one or more "paradigms" or "schools of thought" within their disciplines, and the attempt to prove or disprove hypotheses is an important element of the scientific method. It is rare for a scientist to be indifferent about the outcome of a study. A scientist typically wants or expects one sort of outcome more than another.
- As in a criminal trial, at least one side in a scientific dispute is attempting to prove something that is not quite true. In fact, neither side in a scientific dispute should expect to have a complete understanding of the phenomenon in question.
- Like a criminal trial, a scientific inquiry benefits from representation of differing points of view. Without the probing challenges of skeptics, scientists are subject to the danger of accepting unquestioned and untested assumptions. Scientists in that situation would be like well-intentioned investigators in a non-adversarial system of justice. Their prejudices and their initial hypotheses could sometimes lead down the wrong path, and valid arguments on the other

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side of the issue could remain unexplored and unspoken. Evidence that seemed to support their expectations could be too easily accepted as sound.

Scientific debates can also differ from legal and political debates in certain ways. One important difference is that scientists tend to share a set of attitudes that enable them to refine and correct their understanding of an issue. Those attitudes are extremely important, since the representation of differing points of view in a scientific debate is often dependent upon attitudes and organizational culture rather than upon structural factors.

In a courtroom, the necessary representation of contrary views is assured by the design of an adversarial legal system. When necessary, the government even appoints attorneys to defend suspected criminals from the government's own prosecutors. In the political realm, the representation of contrary views is often assured by the nature of political parties. But structural factors are sometimes not sufficient to ensure the representation of contrary views in scientific organizations. Whether they operate in the academic, governmental, or commercial sectors, scientists are naturally tempted to look hardest for evidence to support the propositions that they believe to be valid. They are less likely than attorneys or politicians to work alongside opponents who are making an aggressive attempt to discredit their expectations. The organization that pays their salaries or provides their funding may not necessarily finance an effort that opposes its objectives.

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A particular set of attitudes and practices is therefore necessary to ensure that scientific assumptions and findings are effectively questioned.

- One important attitude for scientists is open-mindedness. Scientists typically operate with a premise that the full truth is not yet understood and that their current understanding of any issue must be subject to change. Such change may sometimes be difficult or slow, but it is essential that scientists be open to considering other evidence and ideas—even if they do not want that evidence, even if they do not initially share those ideas, and even if their cherished convictions are called into question. Of course, such an attitude would often be appropriate for attorneys and policy advocates as well, but it is particularly characteristic of scientists.
- In particular, scientists must recognize the importance of giving serious consideration to all evidence, even if it supports the views of a small minority. Contrary findings require an explanation, and they cannot be dismissed without explaining how and why they are faulty, or how they can be reconciled with the accepted beliefs which they seem to contradict. Even if a theory is widely accepted and valued, any contrary finding indicates that the theory needs further development. It may need anything from a small amount of fine-tuning to a thorough reconsideration of its basic premises. Scientific logic thus requires that *all* pertinent evidence must receive serious attention, even if it calls prevalent beliefs into question.

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- Scientists also do well to cultivate a habit of searching for evidence that contradicts their views. This is particularly important in cases where no opposing team of researchers is aggressively pursuing contrary evidence. For example, the managers of pharmaceutical companies tend to welcome evidence of a drug's success more than evidence of its failure. Researchers, doctors, and patients also prefer to see a disease conquered than to see years of research prove fruitless. It therefore becomes particularly important for the tests of a new drug to exclude bias toward the desired outcome. They must be sensitive to any evidence in favor of the "null hypothesis" that the drug does not achieve the desired effect.
- Scientists also must be free to change their positions in response to evidence. Defense attorneys who argued for the conviction of their clients would be subject to disciplinary action by their profession. Lobbyists who argued against the interests of their clients would soon need to find a new line of work. But scientists need to be able to change their positions on scientific questions and pursue new directions of inquiry in response to the evidence that they encounter.
- Perhaps most important of all, scientists need to maintain the freedom to express contrary opinions and pursue lines of analysis that seem to challenge prevalent beliefs. That is how theories are refined and errors are corrected. When that freedom is abridged, whether through organizational constraints or peer

pressure, the process of correcting scientific errors can be delayed.

When Science Meets Bureaucracy. Critics and dissenters thus play an important role in scientific inquiry. But that can be a very difficult role to play. Taking an unpopular position can be uncomfortable and costly even in academic circles, where the freedom to express dissenting viewpoints is officially protected and valued. Natural barriers to questioning popular assumptions are compounded when scientific inquiry takes place in a complex organization such as a pharmaceutical company or a census bureau. Internal criticism and dissent are not always assets for an organization that has a job to do.

Organizations with a task to accomplish must eventually resolve disputes and implement the decisions that have been made. Doubts and open-mindedness are not always helpful when implementing a program. Dissent can be detrimental to operations, and it can be fostered only if it is strongly valued for its importance to the scientific aspects of the organization's mission.

The organizational environment can have a detrimental effect upon scientific inquiry in other ways as well. It is natural for people in a bureaucracy to be concerned with institutional issues such as budgets, organizational and professional autonomy, personal and collective reputations, career paths, organizational objectives and priorities, and other factors that—while perfectly legitimate and understandable—cannot always be counted upon to promote free and full analysis of scientific issues.

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Moreover, the organization responsible for solving a problem can naturally be expected to look harder for evidence that it has succeeded than for evidence that it has failed. In fact, people who want to find evidence of failure can sometimes be scarce even outside the organization. For example, everyone wants a more accurate census: like policy advocates who know what truths they want to find, it is only natural for people to be quick to accept evidence that a method for increasing accuracy has succeeded. In the case of the current methodology for adjusting the census, as discussed in chapter 3 and chapter 5 of this book, superficial evidence of that nature can readily be found.

Thus, critical characteristics of the scientific environment are difficult to maintain in an organization that is responsible for implementing a program. That is not to say that it is impossible to "do good science" in an organization with operational responsibilities. But in order for such an organization to conduct scientific inquiry in a reasonably impartial manner, it must resist powerful natural forces which work against the intellectual environment that good science requires.

When Science Meets Politics. Despite the obstacles to conducting scientific inquiry in a bureaucratic organization, it appears that the Census Bureau has sometimes been able to provide an environment in which scientific information and opinion can flow freely and opposing views on a controversial issue can be developed, dis-

cussed, and refined against one another.¹ However, the natural obstacles to such an environment are greatly intensified when a controversial issue enters the political realm.

The history of the undercount question provides good illustrations of how the political process creates serious challenges for an organization such as the Census Bureau. My understanding of attitudes encountered in the Census Bureau has been aided greatly by the following episode recounted in Harvey M. Choldin's book *Looking for the Last Percent*.²

Prior to the 1990 Census, there was extensive debate within the Census Bureau about the feasibility of developing survey-based adjustments for undercount. Some staff and some external advisory groups wanted to proceed with developing the adjustments, but others argued that they were not feasible. At a meeting on July 17, 1987, the director of the Census Bureau called for a vote between the original census plan and the proposed redesign which included adjustment. Those present at the meeting included senior Census Bureau officials, a representative of the Commerce Department (in which the Census Bureau resides), the Undercount Steering Committee, and other individuals with major responsibility for planning the census. These individuals had participated in extensive discussions of the adjustment meth-

¹ See Harvey M. Choldin, *Looking for the Last Percent: The Controversy over Census Undercounts* (Rutgers University Press, New Brunswick, 1994), which provides an insightful discussion of events and background information pertaining to the undercount adjustments.

² *Ibid.*, pp. 129-149.

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odology over a long period of time. Their vote was 14 to 4 in favor of the original census plan that did *not* include adjustment.

Nevertheless, later that same day, the director of the Census Bureau told those members of the Undercount Steering Committee who belonged to his executive staff that he wanted to proceed with the full-scale Post-Enumeration Survey (PES) and to be prepared to adjust the census. This was not a decision to adjust the census, but rather just a decision to develop the adjustments and be prepared to adjust the census if the adjustments were determined to be appropriate.

Shortly thereafter, however, senior officials of the Commerce Department reached a decision *not* to adjust the census and *not* to proceed with the full-scale PES. They had been exposed to the technical aspects of the adjustment process and they cited technical factors when they eventually explained their decision, but they had not been involved in the full range of deliberations conducted by the Census Bureau. There was concern in some quarters that their decision was driven, at least in part, by partisan political considerations.

Even the fourteen individuals who had advised against proceeding with development of the adjustments must have had mixed feelings, at the very least, about this involvement by the leadership of the Commerce Department. The Census Bureau had traditionally exercised a great deal of autonomy in making judgments about the appropriateness of technical procedures, but now its autonomy was being challenged. Moreover, despite his initial decisions in favor of the adjustments, the Bureau's director would hopefully have remained recep-

tive to evidence of their success or failure. The leaders of the Commerce Department, on the other hand, had less expertise in these technical issues. Since they also had closer associations with a political administration that was skeptical of plans to adjust the census, they might not necessarily be very receptive to any scientific evidence that favored the adjustments. Thus, control over the decision was moving out of the Bureau, where sensitivity to arguments developed by Bureau staff would presumably be strongest, and into an environment where scientific concerns might potentially be overruled by political considerations.

The impact of this episode upon attitudes within the Bureau was probably magnified by the way in which the Commerce Department's decision was implemented. Only the Bureau's executive staff were informed of the decision to forego the full-scale PES. They were ordered by the Commerce Department not to inform other Bureau staff or anyone else. Thus, for a period of three months, the leaders of the Census Bureau were placed in a difficult position. They could not provide straightforward testimony to subcommittees of the House of Representatives or provide full information to their advisory committees. Their staff continued to conduct research and planning without knowing that the Department of Commerce had already decided not to implement their plans. As Choldin notes, "in these months the senior staff violated a major tenet of their culture—open information."³

³ *Ibid.*, p. 149.

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Episodes such as this helped cause the technical issues that surround adjustment of the census to become linked with an organizational issue: should census policy be set by the Census Bureau or by the Department of Commerce? Subsequent developments have transformed the issue into whether census policy should be set by the Administration, along with its representatives in the Commerce Department and the Census Bureau, or by Congress and the courts.

It seems natural for a scientist to favor the decision-making environment that appears best equipped to deal with objective scientific concerns.⁴ But there is a danger that support for the Census Bureau's official position on a particular issue will thereby become a litmus test to measure one's support for the autonomy of the Census Bureau or for the notion that scientific issues should be decided on a scientific basis. More than once, I have participated in discussions where my technical concerns about adjustment were equated with support for politicizing technical decisions about the census. The ability of scientists to take an objective position is seriously diminished by such a linkage between scientific questions and issues of organizational autonomy. To the extent that a particular position is seen as supporting the

⁴ Perhaps that statement is too strong. After all, some of the same social scientists who now insist that the adjustment decision should be entrusted solely to the objectivity of the Census Bureau actually turned to the courts during the 1980's and argued that the Bureau's decision against adjustment should be overturned. When scientists enter the public arena, perhaps it is natural for them to become like other policy advocates and favor the decision-making environment that seems most likely to produce the desired results.

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autonomy of one's organization or profession and the other position is seen as weakening it, the ability to make scientific judgments on a scientific basis is diminished. The cherished principle is violated in the very act of striving to protect it.

The politicization of the adjustment debate has caused it to include other non-scientific issues as well. In the political realm, the adjustments for undercount are promoted because they are expected to empower population groups that need to be empowered and increase funding for cities that need more funds. Such considerations would be relevant to a purely political or budgetary decision, but they are not relevant to a technical evaluation of how well the adjustment methodology succeeds in measuring undercount. Yet individuals and organizations that criticize the adjustments on technical grounds are subject to accusations of racism or of indifference to the needs of America's cities. Once again, political factors make it difficult to render scientific judgments on a scientific basis.

The politicization of the undercount issue also exacerbates the normal bureaucratic factors that affect the Census Bureau's ability to conduct an objective and unbiased inquiry into its adjustment methodology. As illustrated by the episode described above, political considerations can override elements of organizational culture that are important to scientific inquiry. In particular, internal criticism and dissent become much more problematic in a politicized environment. They pose difficulties for an organization under even the best of circumstances, but they can be serious liabilities when an agency is besieged by external critics. It is reasonable for admin-

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istrators and staff alike to perceive a need to support the agency's public positions. Loyalty to the organization and reluctance to be identified with its external critics can restrain internal questioning of an agency's position, even apart from apprehensiveness about the possible reactions of one's superiors. In the heat of battle, it is difficult for an organization to question whether or not it should win.

Thus, the intellectual environment that scientists need to correct their errors and refine their understandings can easily be lost when a disputed issue enters the political realm.

When Science Meets the Law. The 1980 Census was the subject of 54 lawsuits, most of which were initiated by proponents of adjusting the census for undercount.⁵ Legal battles over the 1990 Census were no less intense or trying for the Census Bureau. Suits over adjustment of Census 2000 began years before the census was conducted and will probably continue for years after it is completed.

Litigation greatly decreases an organization's ability to engage in impartial scientific inquiry. The Census Bureau—including its scientists as well as its attorneys—has not only been drawn into a combative legal environment, but it has been made into one of the combatants. Once again, internal criticism and dissent become more than

⁵Ian I. Mitroff, Richard O. Mason, and Vincent P. Barrabba, *The 1980 Census: Policymaking amid Turbulence* (Lexington, Mass., 1983); cited in Choldin, *op. cit.*, p.1.

just impediments to operational efficiency: they threaten the Bureau's ability to prevail in court.

Involvement of courts in the undercount controversy has had an effect upon demographers and statisticians outside the Census Bureau as well. Proponents of adjustment learned an important lesson from the lawsuits that they lost in the 1980's and 1990's. One reason why the courts declined to force an adjustment is that eminent statisticians testified on each side of the issue. One of those statisticians concluded:

First and foremost, perhaps, the eight years of litigation framing the 1990 count points to the need to develop a consensus on methodology among the stakeholders, policymakers. . . and the social science community in advance of the census. It is then incumbent on the social science community, particularly those outside the bureau, to sell the plan to politicians, who quite naturally, want to see the "experts" agree.⁶

If social scientists are to present a united front, then dissent and criticism of the adjustment methodology cannot be entertained even outside the Census Bureau. The "social science community" as a whole is thus at risk of losing its ability to conduct an objective and unbiased inquiry into this topic.

The desire for an appearance of consensus may help explain why prominent critics of the adjustment methodology were not included on the panels that were con-

⁶ Margo Anderson and Stephen E. Fienberg, "Who Counts? The Politics of Census Taking," *Society*, March/April 1997, p. 26.

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vened in the 1990's to analyze and endorse the Census Bureau's plans.

Prominent Endorsements of "Sampling" in the Census. One of the most influential arguments for adjusting the census is that the use of sampling techniques has been endorsed by the American Statistical Association and by advisory panels of the National Academy of Sciences. It is natural for non-professional observers to rely upon such endorsements when they do not wish to get involved in technical details. In this case, however, it is necessary to look carefully at what has been endorsed and what questions have been addressed.

An endorsement of "sampling" does not necessarily imply endorsement of every possible methodology that uses sampling techniques. In fact, formal statements of the American Statistical Association have specifically stopped short of endorsing the Census Bureau's adjustment methodology.⁷ A possible reason for this circumspection is that several members and former officers of

⁷ For example, the ASA's *Amicus Curiae* brief, filed on April 6, 1998 in *Department of Commerce v. United States House of Representatives*, stated "ASA also takes no position in this brief on the details of any proposed use of statistical sampling in the 2000 Census. . . . ASA is, however, concerned to defend statistically designed sampling as a valid, important, and generally accepted scientific method . . ." Likewise, an ASA "Blue Ribbon Panel" concluded in 1996 that "scientific probability sampling is broadly applicable to census taking," but its report does not discuss or endorse any specific adjustment methodology.

the ASA have been prominent critics of the current approach.⁸

Likewise, many statements and recommendations in the National Academy reports on the census are quite compatible with the arguments developed in this book. Those reports have made powerful statements of the desirability of improving the census, they have recommended improvements in various census procedures, and they have endorsed the potential value of sampling techniques in the census. Improving the census is an important objective, and there is considerable room for improvement. Likewise, although certain uses of sampling may be ruled out on a legal basis, it is possible that other uses of sampling techniques can improve the census.

⁸ Dr. Jerry Coffey has compiled a partial list of fellows and past officers of the American Statistical Association or the Institute of Mathematical Statistics who have criticized or testified against the adjustment methodology, including: Dr. Lawrence D. Brown (president of IMS, 1993), Dr. Jerry L. Coffey (past member, ASA board of directors), Dr. Paul Meier (president of IMS, 1986), Dr. Fritz J. Scheuren (current vice president of ASA), Dr. William H. Kruskal (president of IMS, 1971; president of ASA, 1982), Dr. Arnold Zellner (president of ASA, 1991), Dr. Rudolf J. Beran (fellow, IMS and ASA), Dr. Leo Breiman (fellow, IMS and ASA), Dr. Persi W. Diaconis (fellow, IMS and ASA), Dr. Morris L. Eaton (fellow, IMS and ASA), Dr. David A. Freedman (fellow, IMS and ASA), Dr. Seymour Geisser (fellow, IMS and ASA), Dr. Louis Gordon (fellow, IMS), Dr. Joseph L. Hodges (fellow, IMS), Dr. David A. Lane (fellow, IMS and ASA), Dr. Bruce D. Spencer (fellow, ASA), Dr. Kenneth W. Wachter (fellow, ASA), Dr. Martin T. Wells (fellow, ASA), and Dr. Donald Ylvisaker (fellow, ASA).

but it must also be recognized that statistical techniques can be devised that would make the census worse instead of better. Unfortunately, some conclusions reached by the National Academy panels fail to reflect evidence that the current methodology for adjusting the census falls into the latter category.

What is lacking in all of the prominent endorsements of "sampling" in the census is an effective refutation of the arguments against the particular approach that is to be used. Even though many of the arguments in this book have been presented by statisticians and demographers over the past decade, none has been effectively refuted in any of the reports by the National Academy of Sciences.

Most of those reports include very little discussion of the weaknesses of the adjustment methodology. The report published in 1994 makes several general references to criticisms of the methodology, for example, but it does not attempt to address those criticisms.⁹ The 1995 report notes that adjustments would increase variability for small areas and suggests further study of the issue, but it does not present or discuss any of the pertinent evidence.¹⁰ The 1997 report discusses some evidence of serious operational problems, but it fails to point out

⁹ Duane L. Steffey and Norman M. Bradburn, eds., *Counting People in the Information Age* (Washington D.C., 1994), pp. 109, 121, 123, 124, 125.

¹⁰ Barry Edmonston and Charles Schultze, eds., *Modernizing the U.S. Census*, (Washington D.C., 1995), p. 100.

their negative implications for the current methodology.¹¹

The 1999 report appears to do better, since it includes an entire chapter that is intended to address arguments against adjustment.¹² Unfortunately, the chapter begins by stating: "We stress that this chapter is not concerned with issues that might arise in the field operations necessary to support integrated coverage measurement." In other words, the chapter is not even concerned with addressing most of the seventeen obstacles that prevent the survey from collecting information suitable for measuring undercount, as discussed in chapter 2 of this book. Such obstacles have been documented extensively in the Census Bureau's evaluation reports on the 1990 coverage survey and in subsequent analyses conducted outside the Bureau.¹³ When issues that arise in field operations are ignored, conclusions are relevant only to a hypothetical "perfect" sample survey—not to a real-world survey that must contend with the same obstacles as the census. The failure to address defects of the survey helps explain why critical limitations of the current approach have been overlooked.

The chapter of the National Academy report in question does address three issues: matching error, heterogeneity, and correlation bias (i.e. missing the same people missed by the census). Although these are all im-

¹¹ Andrew A. White and Keith F. Rust, eds., *Preparing the 2000 Census: Interim Report II* (Washington D. C., 1997), pp. 54-56

¹² Michael L. Cohen, Andrew A. White, and Keith F. Rust, eds., *Measuring a Changing Nation: Modern Methods for the 2000 Census* (Washington D.C., 1999), pp. 68-85.

¹³ For example, see Breiman *op. cit.*, Darga *op. cit.*

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portant issues, they represent only a portion of the case against the adjustments. Moreover, the discussion of these issues fails to mention most of the relevant arguments that have been raised by critics of the adjustment methodology; even the arguments mentioned are not effectively countered.¹⁴

The failure to recognize and deal with key criticisms of the adjustment methodology may reflect the composition of the panels in question. Although the panels consist of eminent scholars drawn from many fields, they have not included any of the prominent statisticians and demographers who are critical of the Census Bureau's methodology. Such panels are analogous to teams of outstanding attorneys who represent just one side of a contentious legal dispute: important arguments for the other side can remain unspoken and unexplored. Al-

¹⁴ On page 73, for example, one piece of evidence is selected out of a series of related points (see Breiman, *op. cit.* p. 466), and then criticized because—taken by itself—it only applies to a small proportion of the population. Extenuating factors are then cited on pages 73-74 to explain away a portion of high gross rates of matching error, but factors operating in the opposite direction are not mentioned and there is no recognition that the error which remains is very substantial relative to the magnitude of net undercount which the survey is called upon to measure. Analyses that minimize the implications of heterogeneity are cited on pages 75-79, but evidence and arguments on the other side of the issue are neither presented nor refuted. The discussion of correlation bias on pages 79-85 ignores evidence of the magnitude of the problem. It is also ironic that, although my previous book and my congressional testimony presented an extensive case against adjusting the census, the one argument attributed to me on page 82 is an argument that I have never made.

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though a panel representing one side of a dispute can create an *appearance* of professional consensus, it is seriously handicapped in the task of resolving controversies and achieving true consensus.

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Political and legal controversies over adjustments for undercount made Census 2000 extremely difficult for the Census Bureau. Preparations for the census were hindered by prolonged uncertainty about how the census would be conducted. No one who has experienced this process wants it to be repeated in the next census.

Nevertheless, after a fashion, the decision-making system has worked successfully. When scientists in the Census Bureau and other influential institutions reached conclusions without giving adequate consideration to one side of the dispute, political and legal institutions kept the issue open and ensured that both sides would receive a hearing. Political and legal forums are certainly not the ideal setting for resolving a scientific dispute, but they do have the virtue of being structured in a way that usually ensures both sides an opportunity to present their evidence.

As this book is being written, final verdicts on the adjustment methodology have not yet been rendered. Will legislative bodies overcome their partisan and geographic divisions, and will they make decisions that reflect the technical merits of the adjustment methodology? Will the Census Bureau make unadjusted data available for the full range of census products? Will courts prohibit or require the use of adjusted data for fund dis-

inflation and redistricting? How long will it take for statisticians and demographers to incorporate the evidence against the adjustment methodology into their thinking about the census? Will new and better methods be developed to correct the flaws of Census 2000 and the census of 2010?

This book demonstrates that faulty efforts to fix the census can reduce its value and credibility. The legal, political, and scientific realms must work together to fix the census without breaking it.